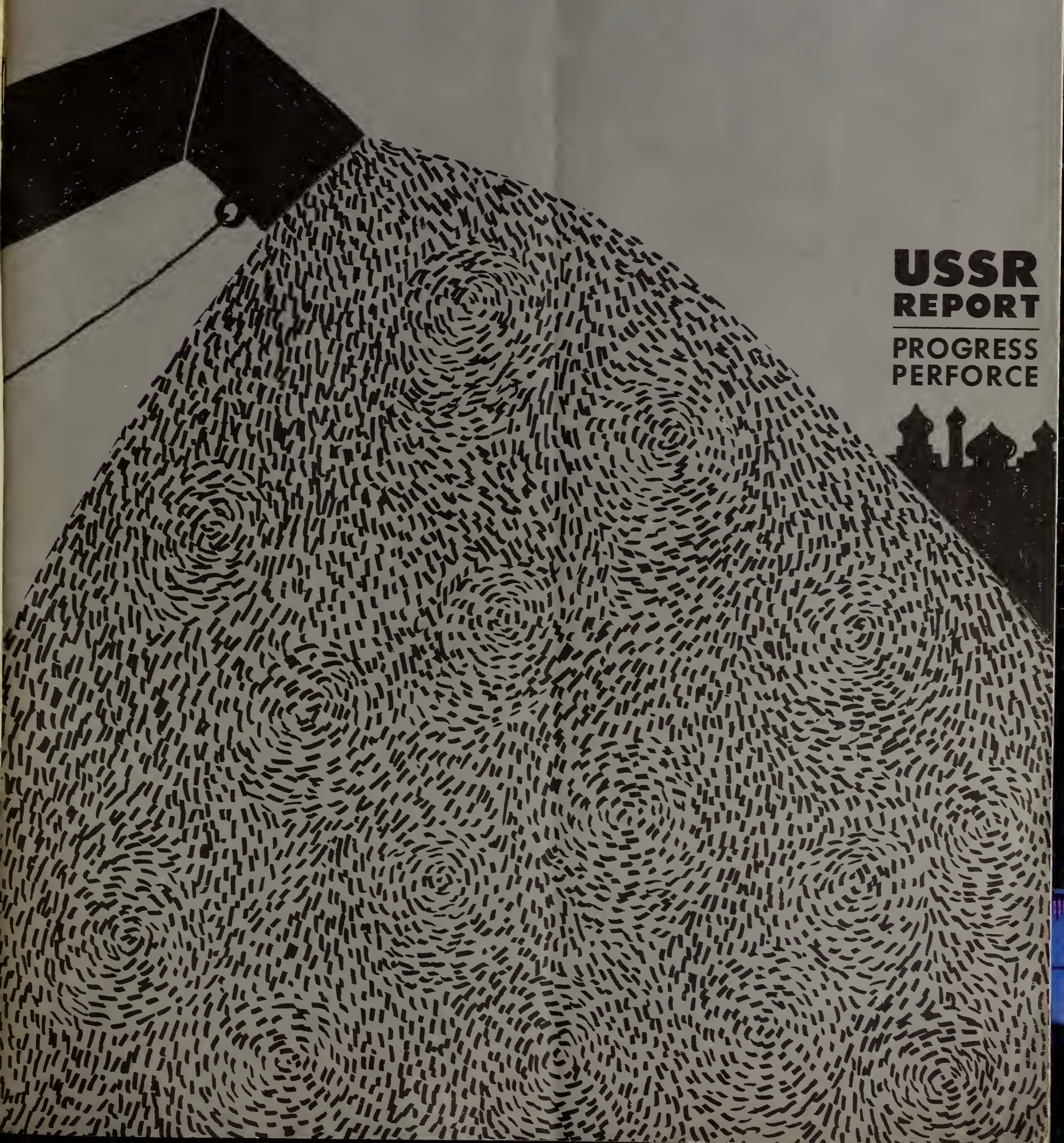
THE FARM INDEX

ECONOMIC RESEARCH SERVICE ★ U.S. DEPARTMENT OF AGRICULTURE ★ APRIL 1966



USSR REPORT

PROGRESS PERFORCE

economic trends

ITEM	UNIT OR BASE PERIOD	'57-'59 AVERAGE	1965			1966	
			YEAR	FEBRUARY	DECEMBER	JANUARY	FEBRUARY
Prices:							
Prices received by farmers	1910-14=100	242	248	238	259	263	272
Crops	1910-14=100	223	232	234	223	228	236
Livestock and products	1910-14=100	258	261	240	289	293	302
Prices paid, interest, taxes and wage rates	1910-14=100	293	321	318	324	327	329
Family living items	1910-14=100	286	306	304	309	309	312
Production items	1910-14=100	262	276	273	278	281	282
Parity ratio		83	77	75	80	80	83
Wholesale prices, all commodities	1957-59=100	—	102.5	101.2	104.1	104.6	105.3
Commodities other than farm and food	1957-59=100	—	102.5	101.9	103.2	103.5	103.8
Farm products	1957-59=100	—	98.4	94.5	103.0	104.5	107.3
Food, processed	1957-59=100	—	105.1	102.1	109.4	110.3	111.7
Consumer price index, all items	1957-59=100	—	109.9	108.9	111.0	111.0	—
Food	1957-59=100	—	108.8	106.6	110.6	111.4	—
Farm Food Market Basket: [1]							
Retail cost	Dollars	983	1,042	1,013	1,063	1,075	—
Farm value	Dollars	388	409	383	441	445	—
Farm-retail spread	Dollars	595	633	630	622	630	—
Farmers' share of retail cost	Per cent	39	39	38	41	41	—
Farm Income:							
Volume of farm marketings	1957-59=100	—	118	84	132	131	86
Cash receipts from farm marketings	Million dollars	32,247	38,930	2,292	3,698	3,653	2,641
Crops	Million dollars	13,766	17,144	822	1,773	1,724	885
Livestock and products	Million dollars	18,481	21,786	1,470	1,925	1,929	1,756
Realized gross income [2]	Billion dollars	—	44.4	—	45.5	—	—
Farm production expenses [2]	Billion dollars	—	30.3	—	31.1	—	—
Realized net income [2]	Billion dollars	—	14.1	—	14.4	—	—
Agricultural Trade:							
Agricultural exports	Million dollars	4,105	6,229 [3]	326	648	506	—
Agricultural imports	Million dollars	3,977	4,088 [3]	269	428	353	—
Land Values:							
Average value per acre	1957-59=100	—	139	137 [4]	145 [5]	—	—
Total value of farm real estate	Billion dollars	—	159.4	157.8 [4]	165.4 [5]	—	—
Gross National Product [2]	Billion dollars	457.3	675.6	—	694.6	—	—
Consumption [2]	Billion dollars	294.2	428.5	—	440.1	—	—
Investment [2]	Billion dollars	68.0	104.5	—	107.5	—	—
Government expenditures [2]	Billion dollars	92.4	135.0	—	139.6	—	—
Net exports [2]	Billion dollars	2.7	7.2	—	7.4	—	—
Income and Spending [6]							
Personal income, annual rate	Billion dollars	365.3	530.7	515.2	550.9	552.3	556.3
Total retail sales, monthly rate	Million dollars	17,098	23,660	23,168	24,793	24,592	24,603
Retail sales of food group, monthly rate	Million dollars	4,160	5,579	5,340	5,979	5,792	—
Employment and Wages: [6]							
Total civilian employment	Millions	64.9	72.2	71.3	73.4	73.7	73.5
Agricultural	Millions	6.0	4.6	4.6	4.5	4.4	4.4
Rate of unemployment	Per cent	5.5	4.6	5.0	4.1	4.0	3.7
Workweek in manufacturing	Hours	39.8	41.1	41.2	41.4	41.5	41.6
Hourly earnings in manufacturing, unadjusted	Dollars	2.12	2.61	2.59	2.66	2.67	2.67
Industrial Production [6]	1957-59=100	—	143	139	149	150	151
Manufacturers' Shipments and Inventories: [6]							
Total shipments, monthly rate	Million dollars	28,745	40,365	38,693	42,622	43,044	—
Total inventories, book value end of month	Million dollars	51,549	67,015	63,382	68,015	68,428	—
Total new orders, monthly rate	Million dollars	28,365	41,173	39,469	43,868	44,298	—

[1] Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1960-61—estimated monthly. [2] Annual rates seasonally adjusted fourth quarter. [3] Preliminary. [4] As of November 1, 1964. [5] As of November 1, 1965. [6] Seasonally adjusted.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Industry Survey, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).

THE AGRICULTURAL OUTLOOK

Intended 1966 acreage of the leading type of **tobacco**—flue-cured—is 8 per cent above 1965 acreage, which was the smallest in 47 years. Flue-cured will be grown under acreage-poundage quotas for the second year.

The 1966 acreage of burley—ranking No. 2 in volume—is estimated at 13 per cent below 1965 and the smallest in 39 years. Burley will continue under the acreage allotment program since in a referendum on March 10, 1966, less than the required two-thirds of growers voting favored shifting to acreage-poundage.

Based on an average yield per acre (taking into account the trend in yields and the effects of poundage quotas), the 1966 flue-cured crop would be about a tenth above the small 1965 crop. Such a crop plus an expected 7 per cent lower carryover would provide a total 1966/67 supply slightly below 1965/66 and about 6 per cent below the 1964/65 high.

The intended acreage of burley (assuming an allowance for trend in average yield per acre) would result in a 1966 crop about 7 per cent below 1965 crop marketings. Particularly intensive efforts by growers to offset the sharp cut in acreage allotments, however, could result in a larger crop than indicated by past trends in yields. Carryover into 1966/67 is likely to be down a little and together with this year's production would provide a total 1966/67 supply about 4 per cent below 1965/66 and 5 per cent below the 1964/65 high.

Farmers will plant nearly 122 million acres to **feed grains** in 1966 if they carry out their March 1 plans. This would be about 2 million more than in 1965 but below plantings of other recent years and nearly 30 million acres less than the 1959/60 average—the base period for the feed grain program.

Increases from 1965 were principally in corn, up 1.6 million acres, and barley, up 1.0 million acres. The prospective oat acreage is down 0.2 million and sorghum acreage, down 0.4 million.

With a normal growing season in 1966, the prospective feed grain acreages would yield a crop about 3 per cent larger than in 1965 and about 10 per cent above the 1959-63 average.

The big 1965 production of feed grains has been largely responsible for slightly lower feed grain prices so far this year than in the same period of 1964/65. Feed grain prices, however, have been higher than for any other year since 1956/57. "Free" supplies are much larger this year, but have not moved rapidly into commercial channels and current market receipts have been augmented by sales from CCC stocks. In the first half of March, corn prices at Chicago were about 5 cents per bushel below a year earlier.

The quantity of 1965 crop feed grains placed under price support has been comparatively small so far this year and the total may be only a little above 1964/65 in spite of the much larger production. Price support activity and deliveries of corn to CCC dropped off sharply in 1963/64 and 1964/65. Prices of each of the four feed grains are above the 1965 loan rates, indicating that deliveries of feed grains will again be relatively small in 1965/66.

Exports of feed grains during October 1965-February 1966 totaled nearly 12 million tons, more than 50 per cent above a year earlier, when the dock strike restricted shipments, and the largest on record for an October-February period. For the 1965/66 marketing year as a whole, exports are expected to be about a fourth larger than the 21.6 million tons a year earlier. Domestic utilization is expected to be up by 4 or 5 million tons.

If the planting intentions farmers reported in March are carried out and the uptrend in yield continues, production of spring **wheat** will be an estimated 281 million bushels. Added to the December 1965 seeding report estimate

for winter wheat, this would provide a 1966 total wheat crop of 1,340 million bushels. A crop of this size is slightly above that of last year and around 90 million bushels above the 1958-62 average.

The downswing in **milk** production which began in 1965—reflecting higher livestock and crop prices, poor feed conditions in the important northern dairy areas and favorable off-farm opportunities for dairy farmers—is continuing in 1966. Also continuing are improved sales of milk and its products due to higher consumer incomes. Farm milk prices in 1965 averaged 2 per cent above a year earlier and were the highest since 1961. Milk prices received by farmers in the first quarter of 1966, at an average of $4.50 per 100 pounds, were up over 5 per cent from January-March 1965.

Government stocks were negligible in early 1966 and first-quarter 1966 market removals under USDA dairy price support and export programs were sharply reduced from 1965. Seasonally larger supplies in the second quarter likely will mean prices for manufacturing milk near the USDA price support level. But manufacturing milk and butterfat prices for the year 1966 are expected to be the highest since 1952.

Potato supplies continue heavy. Stocks in storage on March 1 totaled 71.3 million hundredweight, up 30 per cent from a year earlier and 6 per cent above the 1960-64 average. However, all of the increase over last year is in the Midwest and West where supplies are near-record large. Remaining stocks in the East are down substantially from a year ago and are the smallest in a decade. The modest eastern regional supply, plus some delay in new crop growth in the South because of rain, resulted in a substantial price increase in the East during March. Markets for eastern potatoes are expected to remain strong until spring crop harvests become active in May.

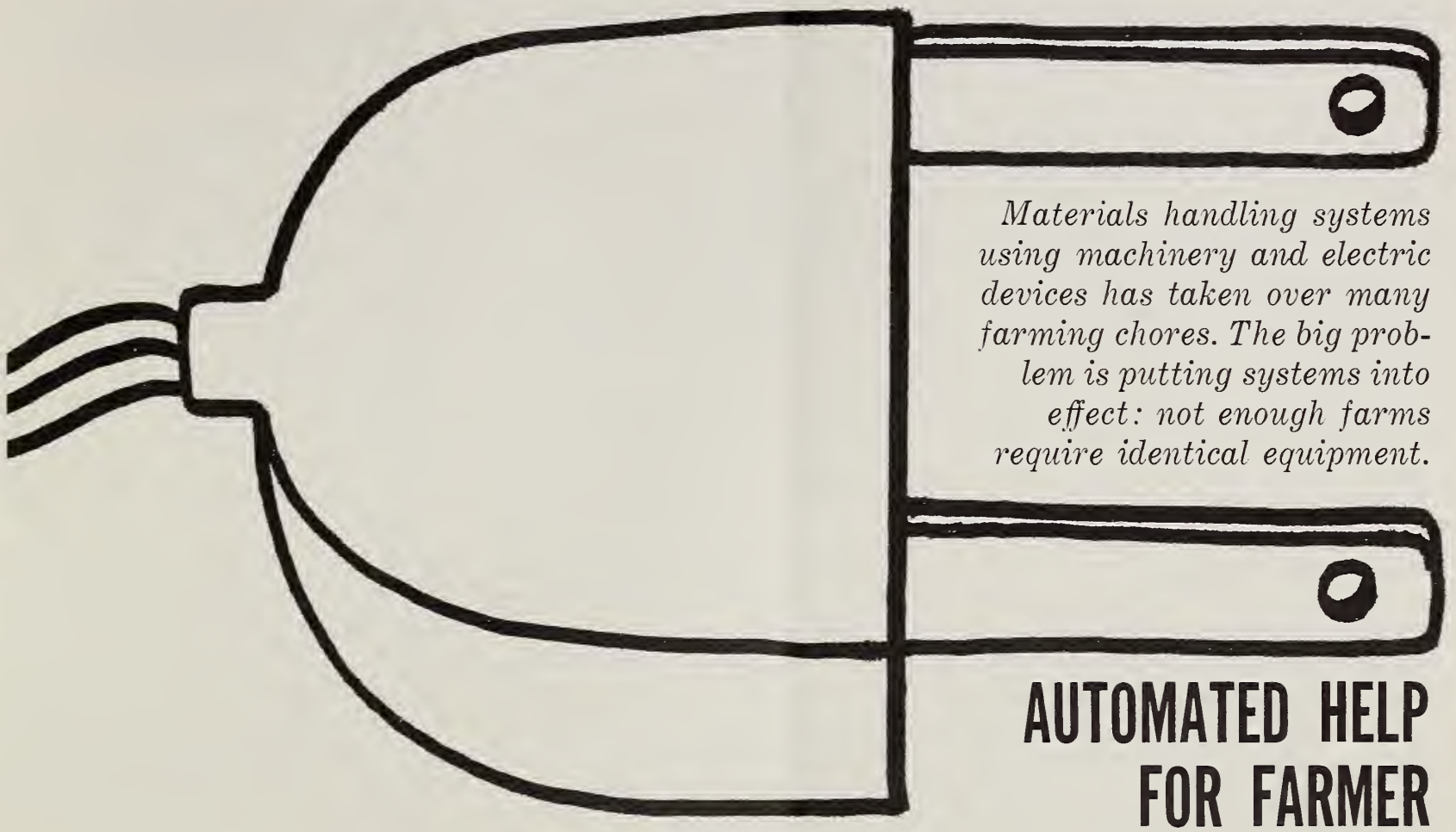
Poultry production has been expanding rapidly in recent months and further large gains in output are expected over the next several months. Broiler chick placements in 23 states for March-May production ran about a tenth above a year earlier and recent turkey hatchings point to at least a 2-million-bird increase over 1965 in turkey slaughter in April-June. This is a substantially larger production, but prices to producers for poultry during the second quarter are expected to average at least as high as a year earlier because demand will be much stronger. After midyear, poultry will face stiffening competition from increasing pork production.

Per capita **egg** supplies available to civilians will be less than a year earlier through summer because of smaller egg production, increased settings of eggs by hatcheries, increased military procurement and population growth. Producers, however, are now rebuilding laying flocks and this probably will lead to an upsurge in production late this year. Producer prices are likely to continue much above the 1965 level through early spring.

During the spring, prices are expected to decline more than seasonally but to still average above a year ago. Increasing egg production in the second half relative to 1965 probably will prevent egg prices from climbing as high seasonally this fall and winter as in 1965. All in all, 1966 probably will be a good year for egg producers.

Prospects continue favorable for adequate supplies of fresh and processed **citrus fruits** this spring. Prices, other than grapefruit and lime, are generally below last year's levels.

A much larger early spring **strawberry** crop than last year is expected. **Apple** and **pear** supplies are lower this spring than last. Supplies of most canned and frozen deciduous fruits continue lighter than a year ago and prices are expected to be generally higher than last spring.



Materials handling systems using machinery and electric devices has taken over many farming chores. The big problem is putting systems into effect: not enough farms require identical equipment.

AUTOMATED HELP FOR FARMER

Many farms are burdened with a piecemeal accumulation of machines which don't work together for efficient farming.

There is a holdover from the 1940s when farmers bought machinery aimed at doing a single job. No one thought much back in those days about the development of laborsaving materials handling systems.

In essence, a materials handling system uses machinery and electronic devices to do a whole series of operations the farmer used to do by hand. For example, livestock feed can now be brought from the silo, ground, mixed in proper proportion and fed to the animals—all by automated equipment.

The great gains since 1940 in hourly output in the production of food and feed grains, however, have not been matched in the production of livestock.

But a special push has been under way in recent years to improve the labor productivity in livestock production. Technical means are now available for increasing output of labor even beyond the large increases made in crop production. It is now possible to produce with two or three hours work the beef that took 25 hours a few years ago; to care for 15,000 hens with the labor that was once needed for 1,500 hens.

But even now when much more is known about such systems, problems still exist in putting them into practice. One of these is that there just aren't enough farms requiring identical equipment. What might work efficiently for one farm might be a burden for another.

The growing trend of farms today—larger and fewer—is complicating the problem even more. Farm businesses for which systems are being developed are usually large. As a result, they require custom-built equipment.

Materials handling systems for large-scale use are needed for the family-size farm. These farms—with proper equipment—can be operated as efficiently as larger-than-family farms.

The benefits that can be derived from the system idea can and should reach all the way down to the farmer who still uses simple equipment. There is still room for learning how to do a better job with what he has and for adding inexpensive equipment to balance a system.

Since three-fourths of the labor on midwestern farms is supplied by the farm operator and the members of his family, the only practical way open to increasing volume of business is through mechanization.

The farmer could, of course, hire part-time help. But competent employees are often difficult to find.

One further advantage of machinery is that hard work may be decreased; disagreeable tasks, eliminated. As a result, young men may choose to stay in farming rather than seek other occupations. Also, capable hired help may be easier to employ and keep on the farm. (*1*)

Using Anhydrous Ammonia Cuts Delta Farmers' Fertilizer Costs Sharply

Anhydrous ammonia is about 35 per cent cheaper per pound of nitrogen than the least expensive solid fertilizer. And while the ammonia, a liquefied gas, does cost a little more to store and apply, it can still mean substantial savings on farmers' fertilizer bills.

Recently economists at the Mississippi Agricultural Experiment Station computed the costs of buying and applying anhydrous ammonia for the Delta. Here's a breakdown of its costs compared with solid fertilizers:

Materials: In 1964, the U.S. average purchase price per pound of nitrogen for the four major nitrogen fertilizers was figured to be 7.6 cents for anhydrous ammonia, 11.6 cents for ammonium nitrate, 12.8 cents for ammonium sulfate and 18.5 cents for nitrate of soda.

Total material costs of anhydrous ammonia to be applied on 850 acres at the rate of 90 pounds of nitrogen per acre worked out to about $4,287 (46.6 tons at $92 per ton). This is less than half the total material cost for the same rate of application of nitrogen in the form of ammonium nitrate—the cheapest solid source of nitrogen—which ran to about $9,179 (115.9 tons at $79.20).

Storage: Since anhydrous ammonia must be kept under constant pressure, its storage and application is somewhat more complicated and does require more costly equipment than do solid fertilizers.

A farm storage tank for ammonia with a 6,000- to 8,000-gallon capacity cost Delta farmers about $3,085 in 1964. If used to capacity (which would be something in excess of two fillings) the average annual operating cost was about $325.

It was generally necessary to haul the ammonia from some central point to the farm in a "nurse" tank. The purchase price of a 1,000-gallon nurse tank in 1964 was about $719. When used to transport 23.3 tons of ammonia for 425 acres, the estimated annual operating costs of maintaining and operating such a tank came to about $195.

The total annual costs for storing, handling and hauling anhydrous ammonia to be applied on 850 acres at the rate of 90 pounds of nitrogen per acre (with an 8,000-gallon storage tank and two 1,000-gallon nurse tanks) came to about $726. This compares with about $349 for ammonium nitrate.

Application: The annual costs of applying anhydrous ammonia are more difficult to figure since it is frequently applied in conjunction with some other field operation. However, for purposes of illustration, the cost of applying the ammonia as a single operation on 850 acres, either preplant or sidedressing, worked out to about $711 (with two pieces of four-row equipment, power and labor), compared with $641 for ammonium nitrate.

Cost comparisons: The total annual costs of using anhydrous ammonia on 850 acres at the rate of 90 pounds of nitrogen per acre worked out to about $5,724 in the Delta. For ammonium nitrate the bill was nearly double—$10,170. Total costs per acre for the two respectively were $6.73 and $11.96; per pound of nitrogen, 7.5 cents and 13.3 cents.

However, a point to remember is that not all soils are suitable for anhydrous ammonia. As the ammonia is applied and freed from pressure it immediately becomes a gas.

In loamy soils, getting a good seal presents no real problem. However, on heavy clay soils it is often quite difficult to obtain a good seal and ammonia escapes during application. It is not uncommon for fertilizer losses of this nature to cause the use of anhydrous ammonia to become uneconomical in some areas. (*2*)

Per Capita Veal Consumption Down From 11.9 to 5.2 Pounds Since '45

Total use of milk and dairy products has risen in the U.S. since World War II, but output per cow has gained at a faster rate. At the same time, milk cows on farms have dropped from 27.8 million in January 1945 to 16.6 million in January 1966.

Fewer cows mean fewer calves and this in turn has caused a decline in veal production, from 1.7 billion pounds in 1945 to only 1.0 billion 20 years later. The decline shows up, too, in per capita consumption. We ate only 5.2 pounds of veal per person in 1965, compared with 11.9 pounds back in 1945.

A secondary reason for lower veal production is that most dairymen realize greater returns from selling milk than by feeding it to calves.

When fluid milk sales are more profitable than fattening calves, the animals are sold within a few days after birth.

About 10 pounds of whole milk are required to add one pound to the weight of a calf. With milk selling for $4 per 100 pounds, for instance, it takes 40 cents worth of milk to put an additional pound of weight on a calf.

For areas where fresh milk supplies are not available or are too costly, commercially prepared milk energy replacers can be used for veal feeding. Milk replacers contain about three-fourths nonfat milk solids and 15 to 25 per cent animal and vegetable fat. About 1.4 pounds of this replacer milk (dry basis) is required to add 1 pound to the calf's weight.

Such milk replacers are used in Europe for the production of "white veal"—a luxury item, lighter in color than the veal produced in the U.S. The United States exported 497 million pounds of nonfat dry milk to Western Europe in 1964; most of it was used in milk replacers. (*3*)

Smoke Signals in Tobacco Industry Say It's Time to Check Farm Costs

There's no question that tobacco farming and processing have changed in the last decade. Allotments are down, yields are up, cultivation practices are more sophisticated and effective. Homogenizing—turning more of the leaf into usable tobacco—and filter tip cigarettes together have increased the output of cigarettes per pound of tobacco. And foreign competition is cutting into some of our markets abroad.

But there is some question as to how well the farmer is adjusting to these changes. A recent study provides a guide to the effect of different cost and price situations in South Carolina. The study covers representative farms in South Carolina's Tobacco Area and Upper Coastal Plain, two regions where more than 90 per cent of the state's flue-cured tobacco is produced.

The study was prepared by the South Carolina Agricultural Experiment Station in cooperation with ERS.

The economists worked out the most profitable farm organizations for 24 different combinations of enterprises in the two South Carolina areas. This is what some of the different patterns look like:

—When the price of tobacco is assumed to be 33.6 cents a pound, only 10 of the 24 representative farm operations find it profitable to plant the crop and none of them use their entire allotment.

When the price is raised to 42.0 cents a pound, tobacco appears in all the maximum-profit combinations; all but three of the farms use up their total tobacco allotment.

Almost all the farm situations call for use of the total acreage allotted to cotton at the 1963 average price at any of the assumed combinations of tobacco allotments and prices.

Soybeans and Coastal Bermuda grass are the most profitable use of cropland not planted to tobacco or cotton on all the representative farms. The crops are used for forage for beef animals.

—The need for hired labor tends to rise as tobacco allotments increase from 55 to 115 per cent of 1963 levels. However, the labor requirements remain the same at the upper limits of the allotments when the price of tobacco is at 33.6 cents. Price in this instance, rather than allotments, determines the most profitable combination of enterprises.

—Most of the farm combinations call for increased investments, not including land, and more operating capital as tobacco allotments rise. Exceptions to this pattern take place when a beef cattle enterprise is cut back as the tobacco allotment increases.

—Increases in the annual net return from the least to the most profitable combinations of tobacco allotment and price range from $1,266 on part-time farms in the Upper Coastal Plain Area to $28,519 a year on the large tobacco-cotton farms in the Tobacco Area. The smallest relative increase is 26 per cent; the greatest is 240 per cent.

—When all tobacco allotment restrictions are removed from the picture, tobacco production is most profitable at prices between 34.0 and 38.6 cents a pound. Cotton at the 1963 average price, is grown on all farms in the Upper Coastal Plain Area. But, because of competing labor requirements, cotton appears in the Tobacco Area only on farms with 250 or more acres and only when the price of tobacco is 34 cents or more a pound. (*5*)

Turkey Talk

There'll be more turkey on dinner tables this year than ever before if growers carry out their January plans.

Present plans are to raise a record-breaking 112.1 million turkeys in 1966. This would compare with 104.7 million last year and would exceed the previous record in 1961 by 4 per cent.

Growers plan to produce 7 per cent more turkeys in 1966 than last year. Heavy breeds are to be increased 6 per cent—heavy whites will be up 15 per cent, while other heavies will be decreased by 2 per cent. Intentions for light breeds show an increase of 12 per cent. (*6*)

CROP PLANTINGS EXPECTED DOWN: March 1 planting intentions indicate 1966 will have the second smallest planted acreage since records began in 1929. Farmers plan a total of 305 million acres in crops—2 million less than last year. The record low is 301 million acres planted in 1962.

For the spring planted crops, soybeans lead in acreage expansion with an increase of 1.7 million acres or a total acreage 5 per cent above 1965 and a record high for the sixth consecutive year. Biggest decrease is 3.3 million acres for cotton—down 23 percent. (4)

Crop	Planting intentions	Change from 1965	Change from 1960-64
	Million acres	Per cent	Per cent
Barley	11.6	+10	—19
Corn	68.4	+ 2	— 3
Cotton	10.9	—23	—31
Hay	67.2	— 1	—
Oats	24.9	— 1	—16
Rice	2.0	+ 9	+14
Sorghum	16.8	— 2	+ 1
Soybeans	37.1	+ 5	+31
Tobacco	.98	—	—15
Wheat:			
Spring Durum	2.3	—	+11
Other spring	9.3	— 5	+ 2
All wheat	53.8	— 6	—

THE ALL-PURPOSE AIRPHOTO

One of the most versatile tools in rural and urban planning, airphotos also save time and money and help improve accuracy.

What is an airphoto? In the dictionary it's any photograph taken from the air. To the average viewer, it's a pretty bird's-eye picture of pastoral landscapes or city skylines.

But to the rural or urban planner, an airphoto can be a map, a directory of past and present land uses, an indicator of the direction, type and density of development in a changing area. Actually, the use of airphotos in planning is limited only by the training, imagination, experience and ingenuity of planning specialists themselves.

Not only are airphotos versatile, they also can save considerable time and money for planners. For example, the use of airphotos for mapping in many areas can save much of the time ordinarily needed for conventional ground survey methods. And these savings in time mean savings in salaries for ground crews, transportation, housing the men on the job and so forth.

Here's a brief rundown of the ways in which airphotos are currently being used in rural and urban planning:

Traffic and parking surveys. Where are the traffic bottlenecks during a weekday rush hour? An airphoto "freezes" every moving and parked vehicle in an area at any given time. Not only will the photo pinpoint centers of congestion, it enables planners to get a more accurate traffic count more quickly and at less cost than can be obtained from the ground.

Land use changes. Is suburban growth encroaching on farmland? Airphotos can illustrate not only the type, density and direction of development in a changing area, they can also show the rate of change.

By comparing a series of airphotos taken of the same area at different times, planners can see just how fast change is taking place. Such information on past and present rates of land use change is invaluable as a base for projections of future growth and evaluation of resource needs.

Air and water pollution. A cloud of dense black smoke rising from an apartment building indicates one source of air pollution. Industrial and municipal wastes discharging into and discoloring streams or rivers are clearly visible on color or infrared airphotos.

Measurement. With training and experience, airphotos can be

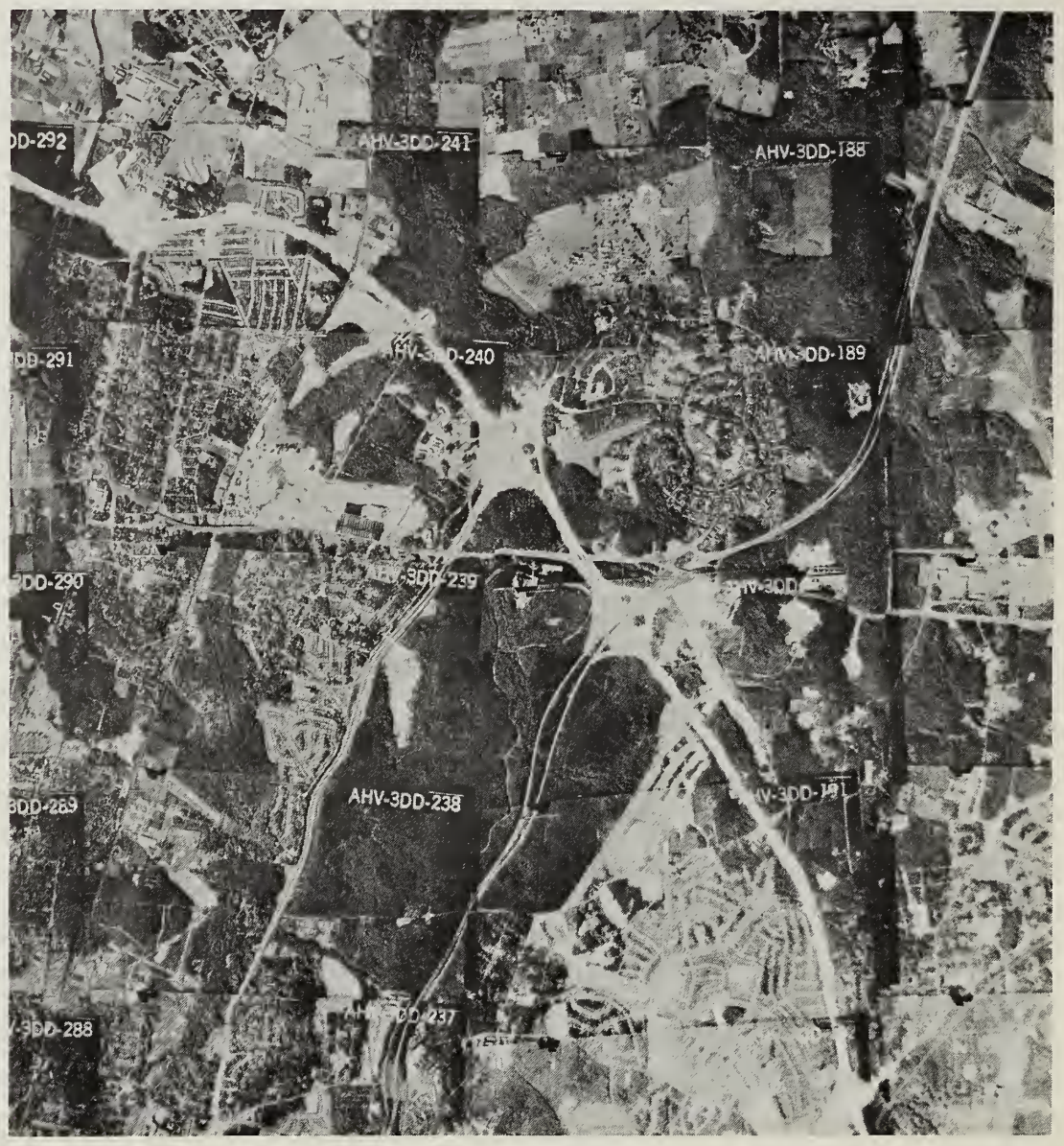
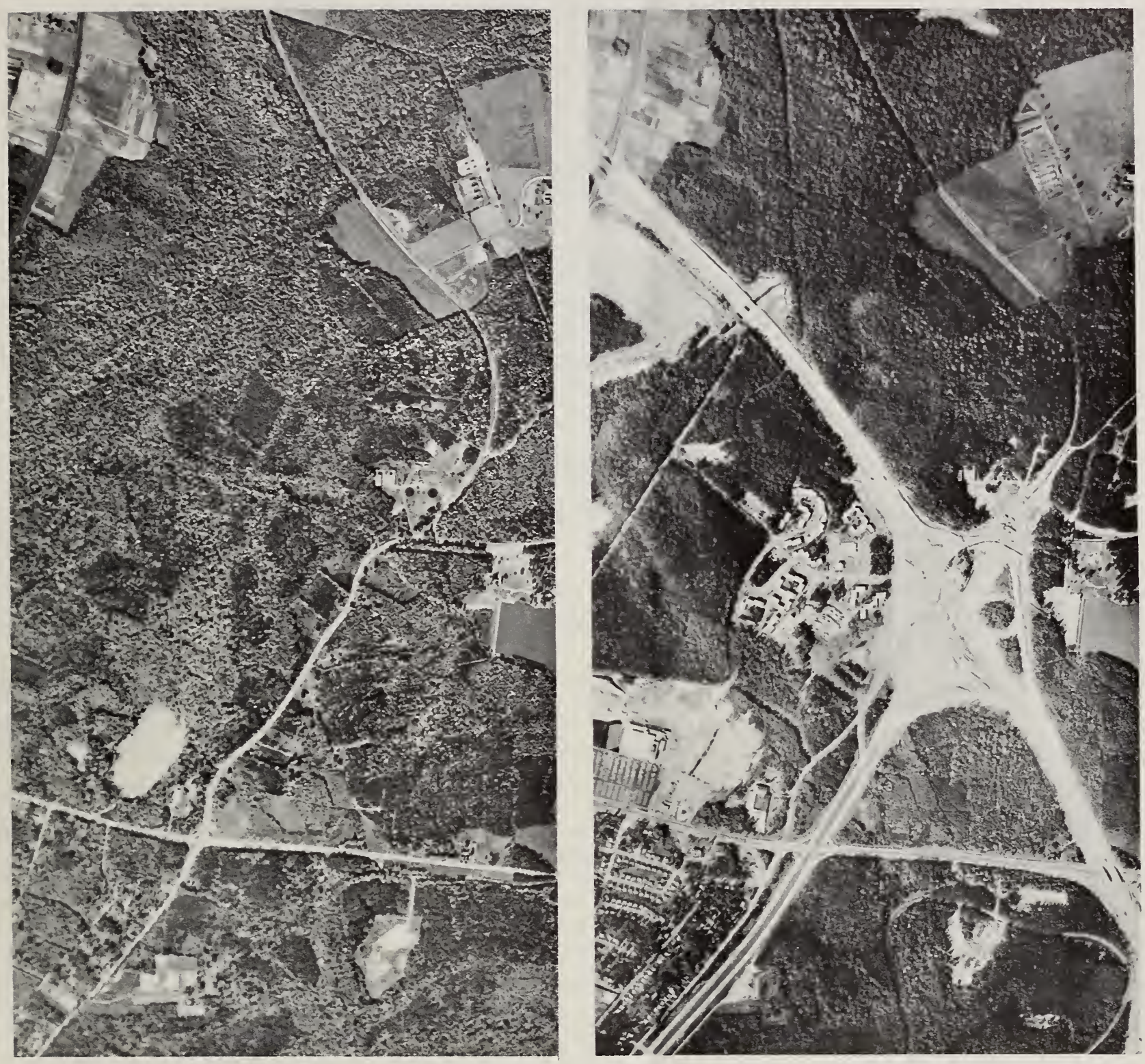


PHOTO INDEX SHEET: Suppose a planner were looking for a large tract of undeveloped land for a park site. A careful check of this photo index sheet (a type of photomosaic used principally as an index to a collection of photos) would show him that his only possible choices would be the dark wooded areas in the lower center, upper right and upper center portions of the sheet. If field checks showed that residential or other development had not occurred since the airphotos were taken, low-altitude airphotos showing the pros and cons of each location could be flown.



TIME SERIES PHOTOS: See what changes time has wrought. The woodlands in the center of the first photo have given way to extensive development in the second. The two-lane roads have expanded into divided superhighways; another big highway is under construction in the cleared area running diagonally across the photo. New garden apartments and additional development are apparent in the lower left corner. These two airphotos—taken eleven years apart—tell planners that a fairly rapid shift in land uses is occurring in this area.

used for many types of measurements. For example, photos can be used for: determining the height of trees and buildings, the number of square feet for parking and the approximate number of spaces in city garages; even the overhead clearance of various highway underpasses.

So effective is photography for some purposes of measurement that a whole science known as photogrammetry has been developed.

Mapping. Maps of many types are essential tools used in planning. Sometimes an airphoto itself can serve as a map. But more frequently airphotos and photogrammetric — supplemented by ground control—procedures are used to update or prepare new topographic maps showing the contours of land, water courses and their drainage systems, forests and so forth. Airphotos, together with field surveys, can

also be used to map soils, geologic structure and mineral deposits.

Where can airphotos be obtained? A large number are available at reasonable cost from many federal, state and local agencies and from commercial firms. (See the box on page 10 for a listing of sources.) For many purposes, airphoto coverage is virtually complete for almost all the United States. If any of the existing photos are suitable, it is usually quicker and cheaper to buy prints than to order new photography. Otherwise, a commercial firm will contract to do the job.

Ordering Airphotos

When a planning agency has determined the type of airphotos needed, how can it locate them?

The Map Information Office of the U.S. Geological Survey (Washington, D.C. 20242) publishes an index map on the *Status of Aerial Photography* which indicates the federal, state or local government agencies and commercial firms holding negatives of recent photography best for general purposes. The Map Information Office also puts out a map showing the *Status of Aerial Mosaics* — which shows areas for which photomosaics are available and the agencies from which they may be ordered.

Most existing airphoto coverage has been taken for the federal government—and of this the majority has been made for the Department of Agriculture. Index maps of each state which have been photographed are published by three USDA agencies: the Agricultural Stabilization and Conservation Service, Forest Service and Soil Conservation Service. All maps are available free and indicate the area photographed, the date made, the negative scale, the camera focal length and the type of film used. Areas under contract for new photography are also shown.

The Coast and Geodetic Survey of the Department of Commerce also publishes indices of airphoto coverage of coastal areas and navigable rivers. (*8*)

Compiling a list of all uses the airphotos are likely to serve—grouped by both priority of need and probable time of use—will help the planner get the most for his money. Consideration must also be given to the types of data needed and the kinds of measurement and levels of accuracy required.

If several groups in one geographic area can use airphotos of the same type and scale, a joint contract for flying the photography could save each agency money. Even if the airphotos are needed for different areas or different scales, grouping the order might be cheaper since the cost per square mile for photography tends to drop as the area covered grows. (*7*)

Aerial Photos of Future Could Show Crop Species, Diseases, Maturity

The better the map, the more certain the journey. And ERS technicians are hard at work improving the economical use of airphotos in agricultural map making.

The improved techniques will give farmers, planners and community leaders more precise information for use in long-range plans for farmland.

Not that use of airphotos in agriculture is anything new. Even before Lindbergh spanned the Atlantic in the Spirit of St. Louis in 1927, agricultural technicians were experimenting with airphotos, trying to make them yield information for more accurate and efficient farming.

And use of airphotos was beyond the experimental stage by 1935 when the Soil Conservation Service and Agricultural Adjustment Administration (now ASCS) began using them to provide the field maps for use in their programs.

Today airphotos are an indispensable part of such varied activities as soil surveys, conservation work, acreage allotments, crop insurance, flood control and land-use change studies.

With better photographic techniques, say the economists, airphotos could provide a wealth of needed information for agriculture as a whole. For instance, the photographs can be sharpened, using films of varying sensitivity, to the point where they indicate the crop species, reveal signs of disease and provide a more exact picture of the degree of maturity and probable yield.

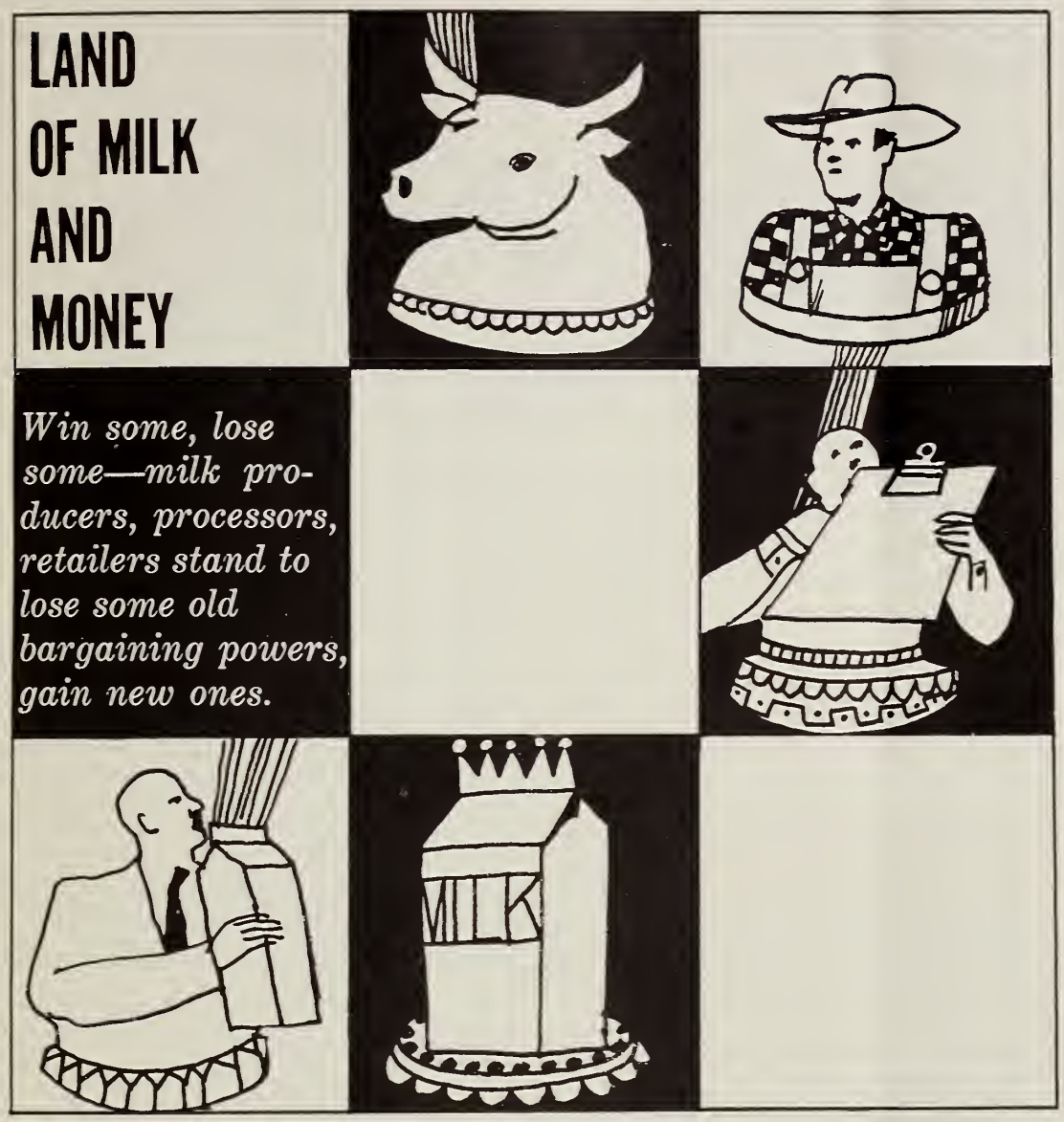
To be able to gather such information vital to the agricultural industries with successive sweeps through the sky during the growing season would be a research and program breakthrough of major proportions. This basic research information would provide for better utilization of resources, more orderly development and ultimately increased productivity.

The potential for gathering agricultural information from the air is so great, in fact, that it raises the further problem of how to use all the information that might be amassed.

The solution may lie in preliminary studies of types of survey data to be obtained, the uses for the information, expected benefits and some study of the cost of gathering such information with expanded air surveys, compared with more conventional methods.

Presumably, the increase in the volume and accuracy of such data would more than pay for the additional expense by helping agricultural leaders avoid costly errors in planning.

Also, the cost of such a stepped-up information plan might be materially reduced by programming satellites to do the job. The earth-orbiting satellites, without question, could provide much of the detailed information needed. The real problem for the immediate future is how to cope with the quantity of information that a satellite might disgorge. (*9*)



From producer to processor to retailer to consumer—the balance of competitive power shifts from one to another with each new development in the industry or the general economy.

This, briefly, is the competitive situation in the fluid milk industry:

The raw milk market. The sale of raw milk in most areas is the work of cooperatives and they have been changing their function in recent years. Largely the producer's bargaining agent in the past, today many a cooperative has taken on the entire procurement job—including assembly, routing raw milk to distributors and managing the surplus.

Such centralized management cuts the cost of handling and also the cost of processing excess milk. It also makes it possible to get along with smaller reserves. And processing excess milk is cheaper than it would be if each handler were doing the job. The central system can also help reduce the cost of collecting milk from the farm and shipping from one city to another.

What this development does to the bargaining process is to give the supplier a position from which he can call for, and frequently get, a premium over established prices of the market order.

The bargaining relation differs, of course, from market to market. And there is nothing to prevent a milk handler from breaking away from his supplier when he finds a cheaper source.

The bottled milk market. When milk was largely home-delivered, competitors relied more on services offered, less on price. Today, with supermarkets, dairy stores, discount stores and neighborhood shops all handling milk, the distributor faces a vastly increased number of outlets.

In the old days, if the distributor lost a customer on his route, he could make up the loss by picking up another household. But when his market is a handful of chainstores, his problem is something else again. Losing one of these major customers quickly threatens the survival of his business.

The competitive picture is further complicated by the private brand of milk, usually packaged for the retail store by one of the processor-distributors.

Before private labels became the custom, as many as a half dozen major brands of milk might be available in the store. But now stores commonly offer only their own private brand and one other, a brand packaged by the company packaging the store's own milk. The other processors are left to find themselves new market outlets. And the retailer has gained a substantial advantage in the bargaining process.

The consumer market. A single consumer is no more important today in the bargaining equation than he was a few decades back. But he has more choice, thus more influence in the market. He can, for instance, get his milk at the back door, at the supermarket, at the neighborhood store, at a dairy store and, occasionally, direct at the processor's plant itself.

Then, too, he can choose from a greater variety of products today that fill the need for milk-type foods in his diet.

Tomorrow's market. The next decade will witness an across-the-board reduction in the number of firms at every level. Not because the largest firms are taking over, but because many a small firm simply won't be able to survive. Net result: more nearly equalized power for the middle-size and big firms.

The dairy farmer in the future will have fewer outlets; often a single cooperative in the area will handle most of the milk. The bargaining power at the farm level will further shift from the individual farmer to his cooperative organization.

There will be more competition between cooperatives as they increase in size and their markets increasingly overlap.

Processors will find themselves with more freedom in dealing with alternative sources of supply, with less freedom in dealing with a smaller number of large buyers. Processor control of brands and prices will decline as use of private labels increases. But if the processor loses some of his bargaining power in the immediate market, he will gain some in the broader market he will serve.

The large retail buyers, having gained some additional power in bargaining, will lose some to the customer who can pick and choose among a greater number of retail outlets. (*10*)

Use Down, Output Down—Carryover For Milk and Products Follows Suit

Total use of milk and dairy products fell about 4 per cent in 1965 from the 1964 record of 132¼ billion pounds (milk equivalent). However, total use exceeded production for the third consecutive year. Thus, carryover into 1966 fell for both commercial and government dairy stocks.

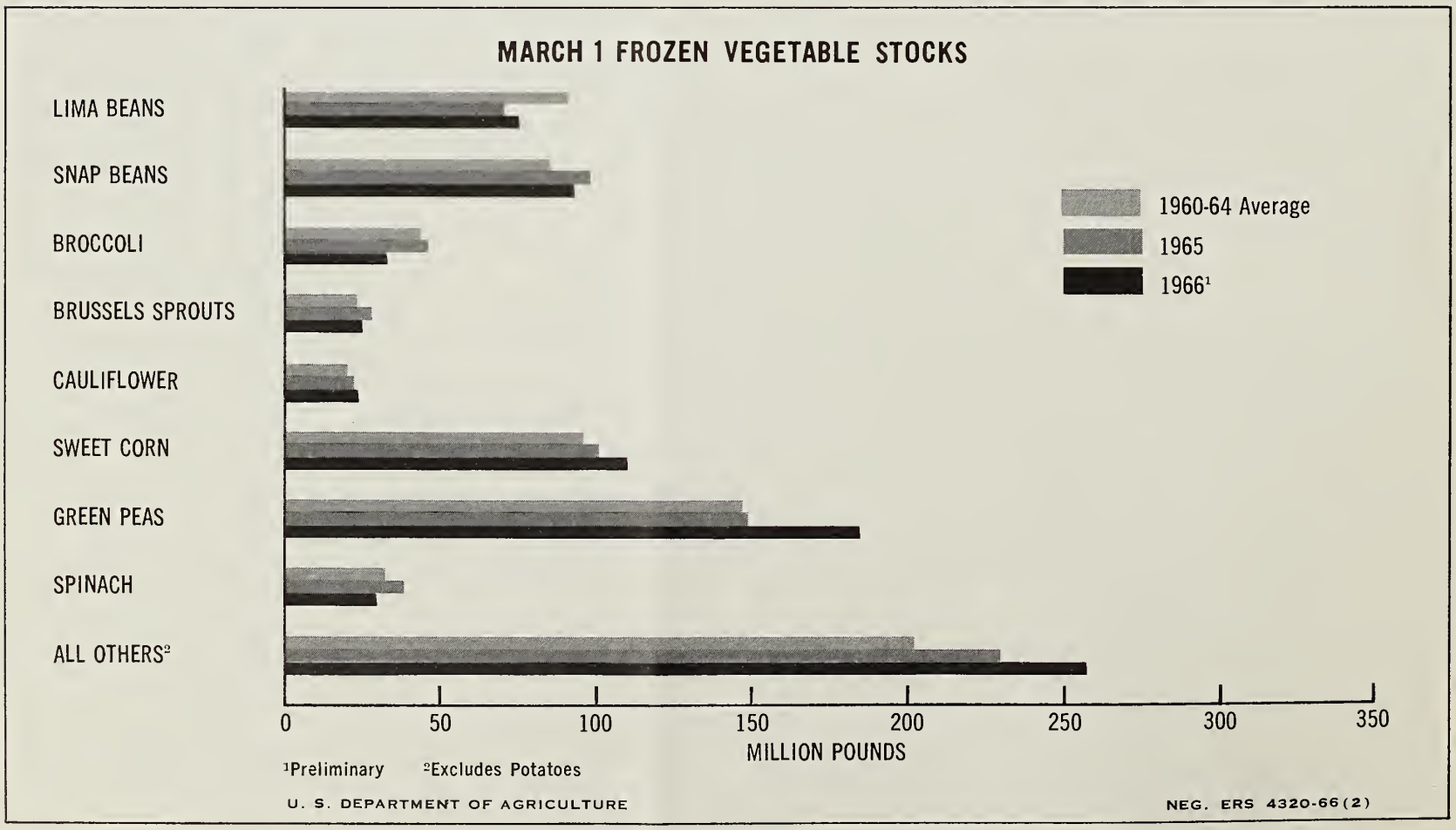
The carryover stocks were down 11 per cent (milk equivalent) at the beginning of 1966, compared with a year earlier. This is the lowest carryover level since 1960.

U.S. milk output decreased in 1965 to 125.1 billion pounds, 1.5 per cent below the 1964 record. As a result of reduced supplies and gains in use of higher-valued fluid products, milk for manufacturing fell about 4 per cent. Use of cheese and frozen dairy products increased to record levels, but in terms of milk used, this gain was more than offset by reductions in evaporated milk and butter and nonfat dry milk output.

Production continued below use at the beginning of 1966. By the end of January, total storage stocks were 3.9 billion pounds (milk equivalent), 1.0 billion below a year earlier and 49 per cent of the 1965/66 marketing year date—the lowest level since 1952.

Government holdings of butter and nonfat dry milk in early 1966 were low; those of cheese were virtually exhausted. Few purchases, except contracted quantities, were in prospect for the rest of the 1965-66 marketing year (ended March 31). Practically all prospective supplies were committed for delivery by the end of March.

Commercial holdings on January 31 were also at low levels. Stocks of butter—at 26 million pounds—were the lowest for the date since 1961. Stocks of American cheese—257 million pounds—were the lowest since 1960. Butter and American cheese make up four-fifths of the commercial storage stocks. (*11*)



This is ERS . . .

The* ifs *in American agriculture are many; this nation and many others are deeply concerned that the right decisions are made at the right times to supply a continuing abundance of food and fiber.

What would be the effect on farm income, on food supplies and costs, on costs of government programs, on foreign aid* if *farmers used more land and more fertilizer,* if *food marketers automated more,* if *other countries produced more?

Providing reasoned answers to such questions, based on economic analysis of the many factors involved, is the responsibility of USDA's Economic Research Service.

With this issue, the Farm Index presents a series of articles on the seven divisions that make up the Economic Research Service, their goals, their work, their research findings and the contribution they make toward answering the perennial* ifs *in agriculture.

M. L. Upchurch

M. L. Upchurch, Administrator
Economic Research Service

MARKETING ECONOMICS

A multi-billion dollar industry has turned itself inside out in the past 20 years.

It has automated its assembly lines, innovated its packaging and product mix, streamlined its buying and selling practices, computerized its recordkeeping, stepped up its advertising program, consolidated plants, decentralized plants, relocated plants—all in an effort to satisfy the consumer and do a better job more efficiently.

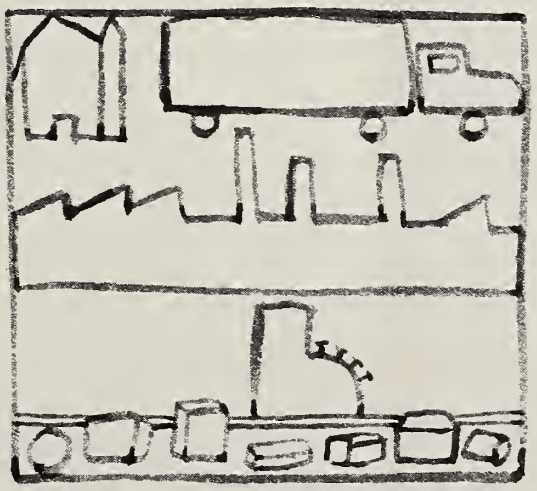
This vitalized industry is agricultural marketing—a network of thousands of firms, large and small, that employ several million people to assemble, process, package, ship, store and sell the food and fiber products of American farms.

It is easy to spot a change here, an innovation there. But how are all the changes in all segments of food and fiber marketing affecting the national economy? The farmer? The processor? The wholesaler? The retailer? And the ultimate consumer, the public?

Providing the basis for answers to such vital questions is a continuing responsibility of ERS's Marketing Economics Division.

Here's what is required:

From government and trade



MARKET STRUCTURE AND COSTS

sources MED pulls together the thousands of statistics which, when compiled and analyzed, become the indicators of trends in the industry.

MED economists start with prices farmers receive for such commodities as hogs, wheat, vegetables. They add figures on how much of each commodity farmers produce and how much they sell in a year.

Next, researchers gather sales and investment figures for hundreds of representative companies in the marketing system, as assembler, processor, wholesaler or retailer. They learn the number of company employees, their average hourly earnings, the quantity of foods they handle and the value they add to these foods through processing or other service. Finally, they obtain financial statements of various firms to gauge the general profit level.

The trends that emerge from this mountain of statistics show that food marketing is indeed a changed industry, compared with 20 years ago. Workers produce more per hour. Costs per unit of

product are down. Plants are fewer but bigger.

And the public gets better foods, with more marketing services added, for a smaller part of its take-home pay than two decades ago.

This continuing analysis of changes in the marketing system crosses areas of research responsibility within the Marketing Economics Division.

Specific research areas are outlined below:

Market institutions and market power. This research concentrates on changes in the way foods are marketed as they affect the bargaining power of buyers and sellers all along the line—from farmer to processor to wholesaler to retailer and, finally, to the consuming public.

HORTICULTURAL AND SPECIAL CROPS

Do farmers do as well selling direct to the big retail chain stores as they do selling to processors and wholesalers? MED studied direct buying of tomatoes, citrus fruits and carrots in the Rio Grande Valley. Conclusion? For these commodities in this area, at least, retail chains pay as well as other buyers.

Other research projects include:

Discount food stores, their buying practices, prices and profits. Retail florists, their credit rating, their future sales potential (flowers are agricultural products, too). New canning and freezing plants to aid depressed rural areas, their labor and product procurement problems.

Prices, margins and costs. With income up, the public is spending a smaller part of its take-home pay for food than ever before. But over time, marketing costs more and farmers get less of the consumer's dollar.

This widening price spread in the marketing system is the subject of continuing MED research. To trace the rise in the farm-to-retail price spread, economists follow the trends in the farm, wholesale and retail prices of a "market basket" of foods the typical modest-income family might buy. In general, over the past years marketing costs have increased relative to farm income. This reflects the trend toward more refined products and more marketing services as well as increasing costs of marketing firms.

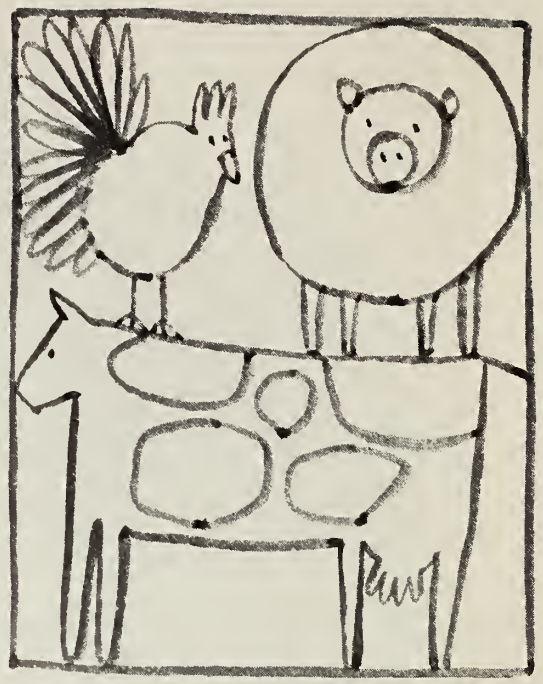
Transportation rates are also a factor in marketing costs. MED specialists assess rate changes and competition among trucks, railroads and barges to help shippers select the best mode of transportation at least cost.

A review of this entire area of prices, margins and costs is published quarterly by the Division in the *Marketing and Transportation Situation.*

Other projects in this research include:

Cost of federal price support programs in terms of storing and handling grains, fibers, oilseeds and other surplus commodities. Proposed changes in grade standards for beef, lamb and lettuce, their impact on farm prices and costs to processors, retailers and consumers.

Location and interregional competition. Just as the textile industry has moved out of New England and into the South, production of some farm commodities has shifted from one section of the country to another in recent years.



ANIMAL PRODUCTS

Analyzing the effect of geographic changes already made and projecting what future changes are apt to mean for producer and marketer alike is an MED responsibility.

For example, most cattle feeding and slaughter operations have grown faster in the West than in the Corn Belt. What effect does this have on channels of trade and the pricing system? What are the economic forces — management techniques, capital investment, transportation costs — which have caused the shift?

More of our grain is exported each year. It used to move through the big terminal points in Kansas City, Chicago and other midwest cities to ports on the east coast. Since railroads lowered grain rates to gulf ports, most of our export grain has gone directly from Kansas, Iowa and other production areas to New Orleans, Houston and other gulf ports. What are future prospects for midwest terminal markets now being bypassed? How much do grain producers benefit from the reduced rail rates?

Other typical projects deal with local and interregional competition:

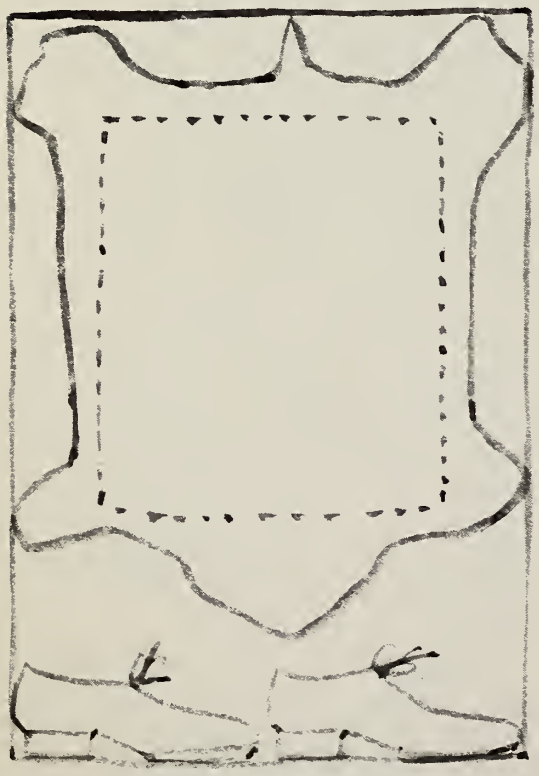
When and why dairies buy bulk milk from plants outside their

own marketing area. More federal price reporting services for beef producers and handlers in the Southwest, an assessment of the need. The competitive position of the asparagus and tomato canning industries in California.

Products and services. New foods, new forms of old favorites, changes in what people like and can afford to eat, inroads by man-made products in the industrial uses of farm commodities—all are subjects of MED research related to products and services.

Convenience foods are the TV dinners, boil-in-the-bag peas and other processed items that cut down on the homemaker's preparation time. Do these built-in maid services add appreciably to their cost? MED analyzed prices of 158 foods in many forms—fresh, frozen, canned and dried. Result? Many convenience foods cost more than their fresh or home-prepared counterparts. But some are actually cheaper because of reduced weight, bulk and spoilage.

How can dairy farmers maintain their income when Americans are drinking less milk? Perhaps the answer is a low-fat milk with fewer calories than whole milk, more taste than skim milk. MED economists found the compromise product did attract some new milk drinkers, but didn't up total milk sales much.



MARKET POTENTIALS

Other typical research projects:

A new way to trim hides to meet competition from synthetic shoe materials. Market tests on such new products as sweet potato flakes, dehydro-frozen peas and apples, sterile concentrated milk.

Merchandising and promotion. Can farmers increase sales through advertising and other market promotion programs? If so, how much money should be spent to get the best possible response? And what kinds of promotion programs are most effective? What kinds of packaging do consumers prefer? How much space should retail food stores devote to frozen foods in view of the costly refrigerated equipment required?

These types of questions are explored by MED in its merchandising and promotion research. Such studies help both farmers and the food industry make more effective use of their promotion dollar.

For instance, one study showed Florida citrus growers who stepped up their promotion program sold three times more fruit than the cost of the increased promotion. About the same results showed up when dairy farmers promoted milk through their cooperatives.

Other typical research projects in merchandising and promotion:

Meat departments of retail stores, how manpower can be more efficiently used. Consumer preference for packaged, compared with grapefruit displayed loose.

Distribution programs and market outlets. This last part of MED research evaluates how well our public food aid programs are serving the nation's needy people and measures the markets that these programs provide for the food industry.

Is the National School Lunch Program reaching all our needy children? An MED survey showed the answer to be *no*, mostly because older schools don't have kitchens. What about one central kitchen to serve several schools? MED showed this would work, at the very least, for cold-packaged lunches in the most depressed areas.

MARKETING DEVELOPMENT

What does the School Lunch Program mean in sales by the food industry? MED reports it is a $1-billion-plus market.

Other typical research projects:

The Food Stamp Program, its contribution to higher retail food sales and better diet for the nation's needy. The fast growing market for food in restaurants, snack bars and other away-from-home eating places.

Summing up, the research responsibility of ERS's Marketing Economics Division is, in the broader sense, to study problems in the rapidly changing food and fiber marketing industry. Based on research findings, the industry can find ways to cut costs, operate more efficiently and, at the same time, strengthen the markets both here and abroad for American-grown foods. (*14*)

USSR REPORT: PROGRESS PERFORCE

The cost of reviving Russian agriculture will be high; the cost of buying capitalist grain is, politically, far higher. Again, a new program, but this time it may be successful.

Can the Russians get their agricultural economy moving again?

Seven years of stagnation, a major crop failure, heavy grain imports—this recent sequence of events on Russian farms hardly leads to optimism. But developments in the past year suggest that Russian farming is in for a new look.

To measure the impact of post-Khrushchev agricultural programs, two questions need to be answered: Why did output rise dramatically from 1953 to 1958, then come to a standstill? How will the new program announced in 1965 overcome the problems of the past decade?

With those questions answered, it is possible to estimate Soviet farm output through this decade.

The fat years and the lean. From 1953 to 1958 agricultural output soared in the USSR largely because the Kremlin decided to put more into agriculture, improving its relative position within the economy. They had reason to do so.

In 1953 Soviet agriculture was the undernourished stepchild of the economy. Khrushchev, on his rise to power, attempted to improve the situation by feeding in more capital, machinery, fertilizer and especially land.

Between 1953 and 1958 the Kremlin managed to increase the sown area about 25 per cent, mostly in the low-rainfall, New Lands Region. The leaders also increased production of chemical fertilizer 60 per cent and deliveries of tractors by more than 100 per cent.

While pushing with increased investments, the Soviet leaders also pulled with greater incentives. The government increased prices paid for agricultural products—procurements—above the near confiscatory levels of 1953.

As a result of this combined attack, incomes of the collective farmers rose by more than 160 per cent. Agricultural production for the period rose by 50 per cent as a result of these moves and with extra assistance from the weather in 1956 and 1958.

After that the Kremlin's concern with agriculture declined. There was no more land for easy expansion; production of fertilizer slowed while exports increased; farms got fewer tractors, trucks and combines; and government investment in agriculture was sharply curtailed. The leaders also chose this time, surprisingly, to raise the costs of production, reducing incentives on the farm.

The effect of these changes was stagnation on the farm, even while the national demand for food continued to increase.

Khrushchev, alarmed by the slowdown in agricultural output, attempted to remedy the situation in 1961 and 1962, but the results at best were mixed. At worst they compounded old problems. And in 1963 the weather also turned against the Russian farmer, resulting in the disastrous crop failures of that year.

These trends and their visible consequences have caused many to see the future of Soviet agriculture as a continuation of stag-

nation. Before this view is accepted unquestioningly, some important changes in Soviet agriculture should be considered.

The remedies. In 1965 Moscow overhauled its agricultural program. It is in part a return to the earlier policy of more inputs, higher incentives.

For example, investment in agriculture is to double between 1966-70, compared with 1961-65. Deliveries of 1.8 million tractors are scheduled during 1966-70; only 1.1 million were delivered during 1961-65. Plans call for 50 to 55 million tons of fertilizer by 1970; 11 million tons were delivered in 1960.

The program also calls for drastic changes in cropping—a renewed heavy emphasis on grain which had the worst record in agriculture after 1958. The food grains, particularly wheat and rye, will get top priority. Not only have prices been sharply increased, but the government pays a 50 per cent premium for deliveries over and above quota levels. Furthermore, the procurement quotas have been reduced to far more realistic levels—not only for grains, but for livestock products as well.

Sharply curtailed corn plantings will permit a greater emphasis on fertilized winter food grains in European Russia, where the more stable climate should help boost output.

These changes will leave more grain on the farm for livestock production, an additional incentive for farmers.

In addition, irrigation and land improvement is being expanded greatly. More independence of decision making on the farm is being permitted. Also, restrictions on individual household farming operations (which presently supply about a third of gross farm output) have been relaxed.

The possible effect. Projecting agricultural output for the USSR is complicated not only by the erratic pattern of output in recent years, but also by the haze surrounding Soviet agricultural output statistics.

Grain yields and production—the most crucial area of concern—are reported by the Soviet Union in "bunker weight," not "barn yield," so the statistics include excess moisture, trash and chaff. The degree to which these inflate the figures differs from region to region and year to year. Experts on Soviet agriculture have different ideas about the degree of inflation, but most agree that it amounts to from 10 to 20 per cent and has increased in recent years.

Economists in ERS have attempted to overcome this handicap. Their projections of grain production by 1970 are based on Soviet yield and output figures for 1949-53—when grain figures were not seriously inflated—and the quantity of available inputs

WHAT'S AHEAD FOR SOVIET FARM OUTPUT? Even though current statistics on Russian agriculture provide an uncertain base for estimates, the chances are the Kremlin will be able to push agriculture further ahead than events of the past few years might suggest. If the programs now in force are carried out, the crucial grain sector of the agricultural economy should show substantial increases.

Commodities	1953-56	1957-60	1961-64	1969-72 (projected)
		Million tons		
Grain:				
Total grain (Soviet) [1]	98.8	120.3	132.1	—
Total grain (USDA estimate) [2]	92.4	99.5	107.9	—
Projected high assumption [3]	—	—	—	160-175
Projected low assumption [4]	—	—	—	150-160
Sugar beets	26.6	48.9	55.7	86
Cotton	4.1	4.4	4.8	6.5-7.5
Oilseeds	3.9	4.3	5.6	8.0
Potatoes	78.8	86.3	79.7	120-130
Vegetables	12.9	15.3	16.5	25-30
Meat (Soviet, including fat and offals)	6.3	8.2	9.1	—
High assumption	—	—	—	13-14
Low assumption	—	—	—	12-13
Milk (Soviet)	41.7	59.2	62.7	—
High assumption	—	—	—	90-100
Low assumption	—	—	—	80-90
Wool	.246	.331	.366	.500
Eggs (billions)	17.8	24.5	28.6	37
Flax fiber	.320	.406	.387	.550-.585

1. Soviet figures for bunker weight, including immature corn. 2. USDA estimates of usable grain, excluding immature corn. 3. Barn yield of 12 to 13 centners per hectare (roughly 20 to 22 bushels per acre). 4. Barn yield of 11 to 12 centners per hectare (roughly 18 to 20 bushels per acre).

was minimal. These base period yields are then combined with a yield response study published in the Soviet Union in 1959 and with another study published by USDA. These studies stipulated the yields of all crops which could be expected from a fixed level of fertilizer and other agricultural inputs as well as those expected with only a limited amount of these inputs.

When the combined effect of the new Soviet programs is added to the inputs which have gone into agriculture in the past decade, it would appear that by 1970 from half to two-thirds of the required inputs will be available. On this basis, it is reasonable to assume that at least half the response anticipated in the studies would be achieved by 1970 or in the years immediately following 1970.

For total grain production, the yield response anticipated from the new program was an average barn yield of all grains of from 12 to 13 centners per hectare (roughly 20 to 22 bushels per acre). Assuming that the total grain area in the Soviet Union by 1970 will be about 135 million hectares, this would result in a total grain output of about 160 to 175 million tons. Should the programs fall short of the promised inputs, a total production of about 150 to 160 million tons is possible.

Soviet success with livestock will depend to a large extent on what can be done with grain output and with pastures abandoned during Khruschev's last years in power. Government purchase quotas have been lowered and prices have been increased for livestock enough to provide some real incentive for producers.

Meat production, which in the Soviet Union includes fat and offals, may run to 14 or 15 million tons, if all goes well. If not, from 13 to 14 million tons is still possible. For 1961-64 production was around 9.1 million tons.

Unlike grain and livestock production, industrial crops, such as sugar beets, oilseeds and cotton, have done fairly well during recent years, largely because the government maintained price levels, provided more generous amounts of fertilizer for production and generally gave them more favored treatment. Despite the new emphasis on grains, these crops should continue to prosper.

Agriculture 1970. The chances are better than even that the Soviets will push agricultural output substantially ahead by the end of this decade. They just about have to.

Though the cost of improving the agricultural plant will be high, the cost of having to buy over 20 million tons of capitalist grain in three years was, politically, far higher.

The government has already shown a willingness to pay the price of improvement — heavy sums poured into the agricultural economy, while demands on the farmer are reduced.

The course of agriculture in Russia over the next five years will, thus, be bounded by official policy and the weather. Plans have been put forward in the past —only to be abandoned. It could happen again. But the seriousness of the present situation and the boldness of the present program are powerful forces working toward improvement. (*15*)

Arid Libya Becomes Economic Oasis Watered by Dollars Flowing from Oil

Long swept by the world's armies, Libya received its independence in 1951.

Four times the size of California, but 95 per cent desert wasteland, the nation has historically cultivated a thin strip of agricultural land along the Mediterranean shore.

The desert was largely left to nomadic tribesmen and their herds which provided the basis for the nation's export trade in hides and skins. For the rest of its foreign exchange, the Lybian economy depended largely on exports of olive oil, tomatoes and nuts.

All that has changed. The desert is flowering. The desert has become the nation's source of wealth, not because of water, but because of oil.

When oil was discovered in 1959, the gross national product stood at $181 million (in 1962 prices) ; on a per capita basis, it was $154.

In 1963 the GNP amounted to $475 million (1962 prices), or $379 per person.

For the United States exporter, the oil economy means a small but growing market and a market with an increasing amount of cash for its needs.

With the nation earning more abroad, it can spend more. In 1951 Libya's total exports were worth $13 million; in 1964 they amounted to $700 million. And imports have climbed, too, amounting to $28 million in 1951 and $292 million in 1964.

Agricultural products are a relatively small part of total U.S. exports to Libya, worth only $2.5 million in 1964, compared with total U.S. exports of $59 million. However, U.S. dollar sales (those not covered under P.L. 480) increased sharply, up $1.1 million from 1963.

In 1962 Libya became a net importer of meat for the first time, a development which suggests the trend toward higher values in food imports.

Other agricultural imports which have been on the rise are other livestock products, wheat, wheat flour, livestock feed, sugar, tobacco and vegetable oils.

Along with the increasing demand, Libya also offers world exporters relatively favorable trade policies. Customs and duties tend to be light except where local agricultural or industrial interests need to be protected. And the duties apply equally to all countries. (*16*)

More Milk for World's People Waits Betterment of Production, Marketing

By 1970, according to estimates, the world's population will be around three and a half billion people, of whom a large share may still be without enough animal protein in their diets.

What are the chances the deficit areas will be able to increase their output of such protein sources as milk?

The obstacles are formidable. There is a basic lack of funds and credit in these countries, low incomes are the norm and processing and distribution systems are commonly primitive or nonexistent.

Furthermore, it will take a small army of technicians to guide farmers in the developing world toward improved ways of dairying.

But the potential, however remote, is real. In parts of Africa —Nigeria and Kenya, for example, where the Agency for International Development has initiated dairy development projects—farmland, properly developed, could sustain dairy herds. Such development would depend on further work on water resources, improving grasses and legumes and a successful campaign to control diseases which cripple livestock production.

Research in Australia may be of particular benefit to dairymen in Africa as well as Southeast Asia and South America. Work on new legumes and grasses, as well as broader use of fertilizers and trace minerals, has enabled the Australians to raise potential forage yields by tenfold.

Similar expansion is possible in the Brazilian grasslands, among other areas.

Dairying, already substantial in Brazil, is on the upswing in the southeastern portion of the country. And a productive dairy industry has started in the temperate valleys of the Andes in Venezuela, Colombia, Ecuador, Bolivia and Peru. Most of Peru's production is along the coastal shelf irrigated by water from the Andes.

Though the possibilities exist, problems do too. Yields will have to be increased in the developing countries, yields both for milk and for grass and feed grains. Greater milk production will call for far greater amounts of capital in the form of foundation stock, feedstuffs, equipment and imported management skills or personnel. Added to these costs are expenditures needed for assembly, processing and distribution systems to handle any increase in milk production.

Also, roads are needed in order to assemble the milk and distribute it to the market. (*20*)

Ovation for Exports

Ten U.S. farm commodities set new export quantity records during the fiscal year ending in June 1965. The values for those commodities deserving plaudits are listed in descending order:

	Million dollars
Corn and products	727
Soybeans	598
Inedible tallow and grease	195
Oilcake and meal	178
Soybean oil	176
Grain sorghums	145
Hides and skins	99
Cottonseed oil	91
Variety meats	50
Fresh grapes	20

More dollar sales were responsible for the increased shipments of all these commodities except soybean oil and cottonseed oil, which moved under both government programs and commercial sales for dollars.

Exports in fiscal 1965 were the second highest on record for five other commodities: rice, $204 million; butter and butter oil, $75 million; canned fruits, $75 million; poultry meat, $55 million; and dry edible peas, $16 million. Again, most of these sales were made for dollars. (*18*)

U.S. Farm Exports This Fiscal Year Heading for a Record $6.5 Billion

U.S. agricultural exports in the fiscal year ending in June are apparently going to hit the highest level in history.

Revised estimates for the current fiscal year point to a grand total of $6.5 billion worth of farm exports—$400 million above the records set in each of the two previous fiscal years.

Our commercial sales for dollars are expected to reach $4.8 billion—topping by a wide margin the previous high of $4.5 billion in 1963/64. Exports under government financed programs in 1965/66 likely will amount to $1.7 billion, about the same as the year before.

New Trade Area

By September there may be three free trade areas in our hemisphere: the Latin American Free Trade Area (founded in 1960), the Central American Common Market (1961) and the newly proposed area comprised of the British dependencies of Antigua (the Leeward Islands), Barbados and soon to be independent British Guiana.

Although the members of the new trade area (which is scheduled to become effective before September 1966) will not necessarily have the same external tariffs, they will have free trade among themselves.

To a large extent, the nonagricultural economies of the three territories are not competitive. But this is less true in agriculture, where sugar is the principal crop in all three.

Barbados has been a one-crop economy—sugar—for over 300 years. And sugarcane occupies almost two-thirds of the cultivated land in Antigua.

British Guiana's two major crops are sugar and rice. The country is usually the sole supplier of rice to Antigua and Barbados and has the potential to become a large supplier of livestock products to the two islands. (*22*)

Most of the anticipated increase is due to big gains in feed grain, wheat, rice and oilseed exports.

Our feed grain exports are expected to rise to an all-time high —more than one-fourth above the 18 million metric tons in the previous year. Both Japan and the European Economic Community (EEC) are purchasing more grain for their expanding livestock industries. One million tons of feed grains shipped to East Europe also bolstered sales.

Shipments of U.S. wheat, including flour, are expected to total some 100 to 150 million bushels above the 728 million in 1964/65. Most of this increase reflects larger exports for dollars.

Rice exports are also likely to set a record at about 34 million bags, 5½ million bags above last fiscal year. Smaller supplies in many nations reduced exports by other major producers and stimulated demand for U.S. rice in importers.

Exports of oilseeds and products likely will total around $1.2 billion, $100 million higher than in 1964/65. (*21*)

Success of Jordan's Farming Goals Dependent Upon Help from Abroad

Jordan is a country where agricultural output is considerably below requirements for domestic consumption—even in years of better-than-average production.

Through its Development Board, the government of Jordan is outlining a plan for economic development through 1970 in which agricultural reforms take high priority.

Specific agricultural development plans include projects in controlled grazing, reforestation, soil erosion control, and land terracing—the latter two aimed at expanding production of olives, grapes and other fruits.

Achievement of Jordan's goals, however, depends largely on help from abroad. A number of western countries, including the United States, are providing financial and technical assistance to Jordan.

With relative political stability and continued foreign aid in these development plans, Jordan could make substantial progress toward a satisfactory economy in the next 15 to 20 years.

One of Jordan's main problems is drought. Rainfall is erratic in timing and amount. As a result, only 2.5 million acres—or 20 per cent of the land area—is arable.

An estimated 85 per cent of all farms are less than 25 acres in size. But this national average is misleading. In the Jordan Valley, for instance, as many as one-fifth of all landholders own less than half an acre apiece and half own about four acres or less.

Nonirrigated wheat and barley occupy over half the total cultivated area of the country. Other rain-fed crops are olives, grapes, figs and minor quantities of pulses, corn and sorghum. Irrigated land is used mainly for vegetables, deciduous fruits, citrus, bananas, figs and some dates, rice and sugarcane.

Land for irrigation is to be increased by wells, developing waterholds and springs and continuing the East Ghor Canal. (*21*)

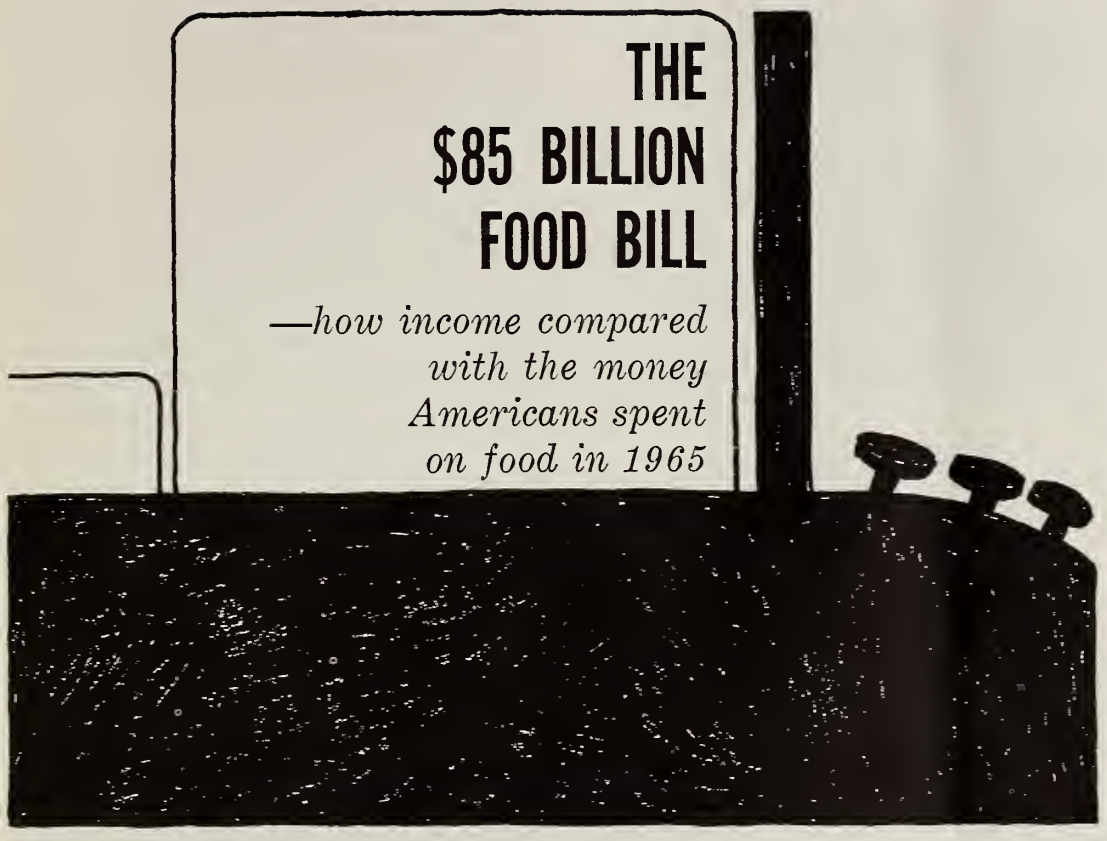
WORLD LIQUIDITY GROWS: Holdings of gold and foreign exchange by foreign countries (excluding the Soviet bloc) reached a record $54.7 billion in 1965, nearly 5 per cent higher than in 1964. The less developed nations as a group enjoyed the biggest increase in their reserves. At an estimated $11 billion, their coffers were about 12 per cent fuller than in 1964. Higher world prices for many of the basic products these countries sold were largely responsible for the increase.

Developed foreign nations' reserves of gold and exchange rose about 3 per cent last year to $43.7 billion. U.S. reserves, primarily gold, declined by $1.2 billion in 1965 to $15.5 billion. Nevertheless, our overall balance of payments deficit was only $1.3 billion, less than half that of 1964 and the smallest by far since 1957. (23)

Foreign holdings of gold and foreign exchange in—

	Developed countries	Less developed countries	All countries [1]
Year	Billion U.S. dollars		
1960	31.6	9.7	41.3
1961	34.9	9.0	43.9
1962	37.0	8.8	45.8
1963	39.9	9.8	49.7
1964	42.3	9.9	52.2
1965	43.7	11.0	54.7

[1] Excludes Soviet bloc holdings.



Americans ran up an $84.9 billion food bill in 1965. That's $5 billion more than the 1964 tally.

Higher retail food prices, more marketing services and a 1.3 per cent increase in population were mostly responsible for the jump in food spending.

Per capita food consumption declined about 1 per cent, but total consumption was up slightly.

Incomes went up more than prices, so people again spent less of their incomes on edibles, only 18.2 per cent.

The nation's total after-tax income rose 7 per cent last year, contributing to the 6 per cent rise in food spending. Higher wages, increased employment, higher dividends and lower federal income tax were the main factors in the higher after-tax incomes.

There were lower supplies and higher prices at the meat market last year. As a result, meat consumption dropped by about eight pounds a person in 1964, when per capita consumption was a record 174.5 pounds.

On the other hand, we ate more fruits (mostly citrus) last year than in 1964. Consumption of frozen orange juice jumped by more than a third to lead the advance.

In addition, we ate an average of three pounds more fresh citrus fruits than in 1964.

The citrus upswing more than offset a decline in potato consumption. A 1964 drop in production and consequent above-average potato prices during most of 1965 caused a decline of more than six and a half pounds a person.

For this year, increased disposable income and prospects of larger supplies point to a smaller increase in food expenditures. (*23*)

Milks With Higher Solids Win Favor Of Taste-Testing South Carolinians

Recent taste-tests show that consumers often prefer milk with higher levels of total solids.

The Market Potentials Branch of ERS, in cooperation with the South Carolina Agricultural Experiment Station at Clemson University, recently asked some 10,000 people to taste-test several pairs of milk samples.

A portable milk dispenser was used in the taste-tests conducted at retail food stores and at public gatherings. At the food stores it was placed near the main entrance to attract the most store traffic. Testing also took place in public schools.

Milk samples with higher levels of total solids were most often preferred between test pairings. But the kinds of solids used caused differences of opinion. Adults liked milk with a relatively high fat content; youngsters, ages 10 to 19, found milk with 2 per cent fat (containing additional nonfat solids) more to their taste.

Milk with a higher total solids content proved its popularity among regular milk drinkers; for those who seldom drink milk there was little distinction between the tasted samples.

As to milk's general popularity, it lay with the youthful testers, while a higher proportion of males than females were regular milk drinkers.

Biggest reasons for preferring the sample milks were pleasing taste, rich texture and sweetness.

Nine sample pairings were employed in the test. Total solids composition of the tested samples varied from 11 to 14 per cent, but 2 per cent was the widest difference in total solids within the pairs. Fat and nonfat solids were used to vary the total solids content of the milk.

The survey indicated the existence of a possible market for two new types of fluid milk. One possible product would contain about 4 per cent butterfat and a 1 per cent higher level of nonfat whole solids (9.5 per cent) than milk currently retailed in South Carolina. Another product would be a low-fat milk containing 2 per cent fat and 10 per cent nonfat solids.

These results lend weight to findings in similar surveys.

Earlier studies suggested that the addition of nonfat milk solids changed the flavor of low-fat milk, making it more popular with the public. (*24*)

MEAT IMPORT PROSPECTS OF THE EUROPEAN ECONOMIC COMMUNITY. D. W. Regier, R. N. Brown, R. W. Hexem and W. P. Huth, Foreign Development and Trade Division. ERS-For. 139.

This study gives a view of what the meat imports of the European Common Market may amount to in the near future. It gives an indication of U.S. prospects for meat sales to the countries of the European Economic Community.

The EEC countries are the largest single outlet for commercial exports of U.S. farm products. In recent years, these countries have purchased over a billion dollars worth of our farm products annually. Internal policy of the EEC, however, is aimed at boosting domestic production of many farm products including meat and threatens to limit imports from outside suppliers like the U.S.

POTENTIAL BENEFITS ON FARMS FROM WATERSHED DEVELOPMENT. R. A. Christiansen and S. D. Staniforth, Wisconsin Agricultural Experiment Station, Madison. Ag. Ec. 46.

Public Law 566, the Watershed Protection and Flood Control Prevention Act, is designed to encourage and implement good conservation farming.

The data based on this study will be helpful in showing what farms would benefit most by participation in the program.

THE WESTERN EUROPE AGRICULTURAL SITUATION: REVIEW OF 1965 AND OUTLOOK FOR 1966. West European Branch, Foreign Regional Analysis Division. ERS-For. 149.

Western Europe's economic expansion continued in 1965, but the rate of growth dropped substantially below the previous year.

This report covers the general economic situation, agricultural production, agricultural trade, the Common Market situation and the national situation.

recent publications

The publications listed here are issued by the Economic Research Service and cooperatively by the state universities and colleges. Unless otherwise noted, reports listed here and under Sources *are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250 State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective states.*

TRANSPORTATION OF GRAIN IN THE SOUTHWESTERN STATES BY RAIL AND TRUCK, 1960-62. Helen V. Smith, Marketing Economics Division, ERS-367 and Supplement.

The grain marketing system is currently faced with problems of change. Volume increases from enlarged production areas have resulted in construction of new country and terminal elevators as well as development of additional milling and mixing facilities for flour and feed.

This study of grain transportation patterns in the Southwest has been developed in response to the need of grain producers and marketing firms for information on the markets for grain in this area.

The data are from a sample survey conducted by interview.

MEATPACKERS' COSTS FOR FRESH BEEF AND PORK. D. B. Agnew, Marketing Economics Division. ERS-254.

This report answers such questions as how much do meatpackers' services cost for choice beef and fresh pork, how are costs of packers' services allocated, how do costs and services for beef compare with those for pork and how do meatpackers' costs compare with their price spreads for beef and pork.

FATAL ACCIDENTS ON FARMS. L. B. Perkinson, Farm Production Economics Division. ERS-245.

The number of fatal accidents occurring on farms has reversed the trend of 1949-54 and is now on the decline. However, the decrease in fatalities has not been so rapid as the decline in the farm population. This report gives a breakdown of the type of fatal farm accidents for various age groups and sections of the country. (See October 1965 Farm Index.)

URBAN EXPANSION AND ANNEXATION, HARRIS COUNTY, TEXAS. H. Shapiro, Farm Production Economics Division, and B. G. Brown, University of Houston. AER-86.

This state permits certain incorporated cities to annex the unincorporated areas beyond their boundaries without the consent of the inhabitants of the unincorporated areas. This report is a case study of such action by Houston.

FARM ADJUSTMENTS FOR CHANGING CONDITIONS: II. TOBACCO FARMS, SOUTH CAROLINA. H. C. Gilliam, Jr., South Carolina Agricultural Experiment Station, Clemson. Bul. 519.

Flue-cured tobacco is a major source of farm income in South Carolina.

The main purpose of this study is to provide information which South Carolina tobacco farmers may use in adjusting their farming operations for more profits.

THE AGRICULTURE OF WEST ASIA. H. H. Tegeler, Foreign Regional Analysis Division. ERS-Foreign 143.

West Asia draws world attention both because of political interest in supremacy of such a strategic geographic location and because of several politically explosive factors—among them the Cyprus question, the pan-Arab and Israeli-Arab disputes and foreign interest in the area from the standpoint of its rich oil deposits.

The area's farm belt is mainly within a broad band which forms an oval from Cyprus to Turkey to Iran to Iraq to the Mediterranean Sea.

This report views the role of agriculture in the economy, crop production, livestock products, international trade in farm products, food consumption, agricultural development plans and outlook for development by nation and by area.

PROFITABLE PLANS FOR FARMS IN THE MAJOR BOTTOMLANDS OF SOUTH CENTRAL AND EAST CENTRAL OKLAHOMA. L. G. Tweeten and A. W. Reichardt, Oklahoma State University, Stillwater, and W. F. Lagrone, University of Nebraska. Okla. Agr. Expt. Sta. Bul. B-641.

This study is part of a regional research project to appraise various opportunities for changing farms to meet changing conditions.

This study looks at various guides to farmers choosing among different production possibilities, and contains advice to farmers and other persons who work in developing and administering public agricultural programs.

CONTRACTING AND OTHER INTEGRATING ARRANGEMENTS IN THE TURKEY INDUSTRY. W. W. Gallimore, Marketing Economics Division. MRR-734.

The U.S. turkey industry is turning more and more toward contracts, agreements and other arrangements to tie production and marketing closer together.

An example is the risk-sharing contract, under which the contractor makes most key decisions about production and marketing and takes most of the production risks as well.

This report traces developments in the industry and examines the various integrations of production and marketing.

ECONOMIC AND OPERATIONAL CHARACTERISTICS OF ARIZONA AND NEW MEXICO RANGE CATTLE RANCHES. C. C. Boykin, D. D. Caton and L. Rader, Farm Production Economics Division. ERS-260.

There are many types of range in Arizona and New Mexico and types and sizes of cattle ranches are equally varied, depending on range types, organization and costs.

This report presents the cost, income and investment of typical ranches in the Southern Intermountain and Southern Desert ranching areas as of 1960. It also evaluates the effect of changes in costs, prices and range forage supplies on the net income of these ranches.

A SIMULATION TECHNIQUE FOR MAKING MANAGEMENT DECISIONS IN DAIRY FARMING. R. F. Hutton, Farm Production Economics Division. AER-87.

In this report, a simulation model dairy herd is used to look at various ways of making herd replacements.

The model is applied to selected problem situations and ideas are presented which will aid in interpreting and putting to use the information produced by the model.

STRUCTURAL CHANGES IN THE FEDERALLY INSPECTED LIVESTOCK SLAUGHTER INDUSTRY, 1950-62. W. E. Anthony, Marketing Economics Division. AER-83.

Most U.S. commercial livestock slaughter is done by federally inspected firms engaged in interstate meat trade.

This report traces the growth of federally inspected slaughter from 1950-54, its decrease between 1954 and 1958 and its resurgence in 1958-62 to give it a net gain of 31 per cent from 1950 to 1962.

Chief data sources are reports from federal meat inspectors and periodic meat production estimates made by the Statistical Reporting Service.

Numbers in parentheses at end of stories refer to sources listed below:

1. R. N. Van Arsdall, Economics of Materials Handling Systems (S); 2. G. B. Crowe, An Economic Evaluation of Anhydrous Ammonia as a Source of Nitrogen, Miss. Agr. Expt. Sta. (S*); 3. R. H. Miller, "Veal Production and Marketing," Dairy Situa., DS-309 (P); 4. Crop Reporting Board, Crop Production, Cr Pr 2-4 (3-66) (P); 5. H. C. Gilliam, Jr., Farm Adjustments for Changing Conditions: II. Tobacco Farms, South Carolina, S. C. Agr. Expt. Sta. Bul. 519 (P*); 6. Statistical Reporting Service, Pou 3-2 (1-66) (P); 7 & 8. J. M. Davis, The Use of Airphotos for Rural and Urban Planning (M); 9. P. R. Luney, Potential Economic Applications of Agricultural Surveys Made from Orbital Spacecraft—Program Status and Plans (S); 10. A. C. Manchester, Milk Marketing in the Next Decade—Power in the Marketplace (S); 11. Dairy Situation, DS-309 (P); 12. W. S. Hoofnagle (SM); 15. H. E. Walters and R. W. Judy, Soviet Agricultural Output (M); 16. C. Santmyer (SM); 17. H. E. Walters (SM); 18. Foreign Agricultural Trade, Jan.-Feb. 1966 (P); 19. Foreign Regional Analysis Division (SM); 20. A. G. Mathis (SM); 21. H. H. Tegeler, Jordan's Agricultural Economy in Brief, ERS-For. 146 (P); (M); 22. Foreign Regional Analysis Division (SM); 23. S. J. Hiemstra, Food: Consumption, Prices and Expenditures (S); 24. E. M. Corley, J. J. Janzen and H. W. Kerr, Jr., Consumer Preferences for Modified Whole Beverage Milks in South Carolina, S. C. Agr. Expt. Sta. (M*); 25. R. F. Daly and A. C. Egbert, A Look Ahead for Food and Agriculture, ERS-277 (P).

Speech (S); published report (P); unpublished manuscript (M); special material (SM); ****State publications may be obtained only by writing to the experiment station or university cited.***

Great Look Forward

Can American farms keep up with the food and fiber demands of our own and the world's growing population?

Barring unforeseen war or depression, appraisals of ERS economists show agriculture may in the next decade or so find:

—A bigger domestic market. U.S. population by 1980 will likely be up 50 million from 195 million in 1965. Consumer buying power per person will be up some 60 per cent from 1959-61.

—Changes in consumption. With rising incomes (a smaller portion of which will go toward food(and changing tastes, people will eat more high-protein, processed and convenience foods, probably less cereals, animal fats and fresh vegetables and fruits.

—Growing commercial markets abroad and exports under special programs continuing to boost the outflow of farm products to foreign markets. Agricultural exports by 1980 are projected to rise about 75 per cent above the 1959-61 average. At this rate, exports would stay at about 20 to 25 per cent of total crop output.

Farm output, according to these appraisals, can more than keep pace with domestic and export demand projected for the next 10 to 15 years. This growth in demand could be met by an output increase of 40 to 45 per cent above 1959-61, with possibly a tenth of our cropland idle.

If all cropland currently out of production under various programs were brought under the plow, crop output is projected for 1980 at a level 60 per cent above 1959-61. (*25*)

THE FARM INDEX

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The Farm Index is published monthly by the Economic Research Service, U.S. Department of Agriculture. April 1966. Vol. V, No. 4.